Accounting Issues: An Essay Series Part III—Inventory

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ABSTRACT

The third in a series of theoretical essays intended to supplement the introductory financial accounting course, this article is dedicated to the treatment of inventory and its related conceptual connections. In addition, this paper addresses inventory measurement dilemmas, describes scandalous accounting episodes that have made the headlines, and offers both theoretical and empirical studies about inventory that might be of interest to both students and professors.

INTRODUCTION

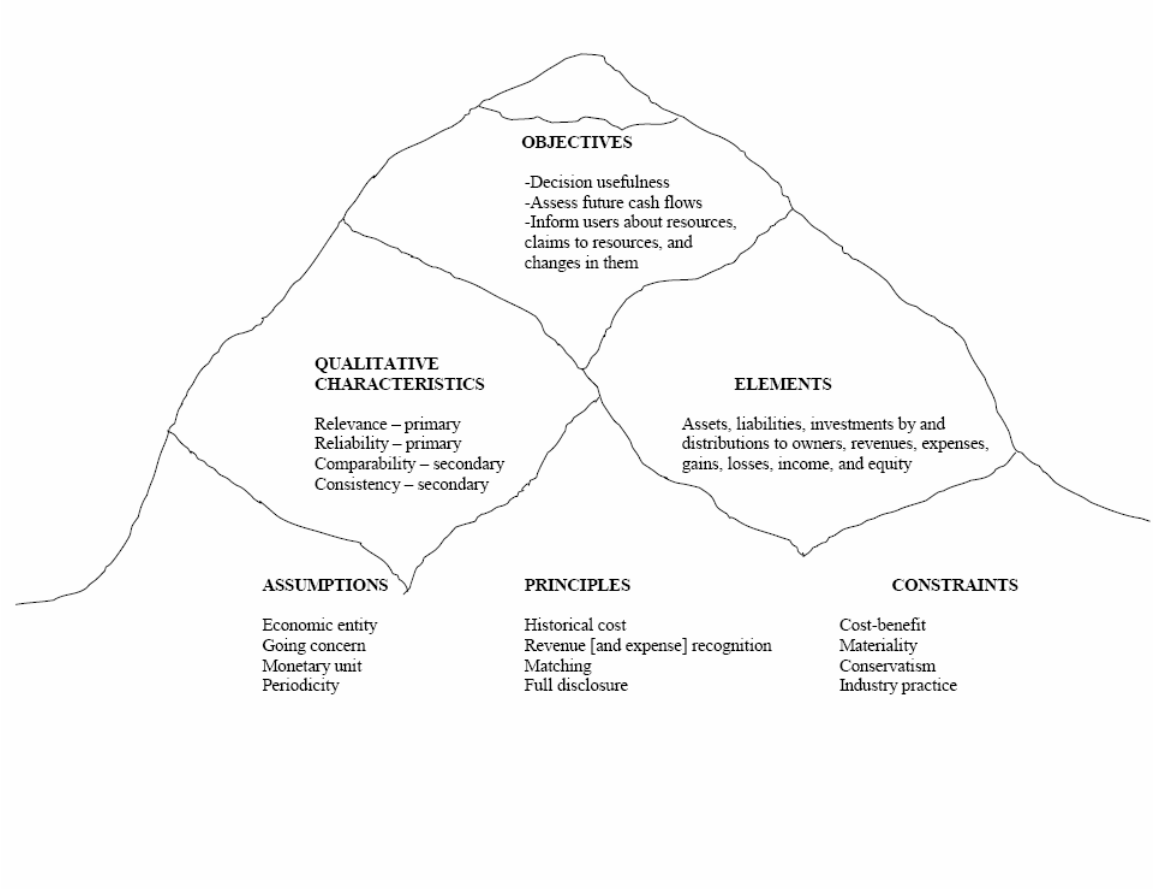
For readers who are new to the series, the need for a theory-based introduction to the major accounting elements is outlined in Laux [2007 (a)], which provided a mountain-hiking analogy context within which we are discussing daily accounting dilemmas (the initial steps taken at the base of the mountain), the adjusting process (in the foothills of the journey), and the ultimate goal of reflecting economic reality in the financial statements (at the peak of the mountain). "The Conceptual Framework at a Glance" section of the above-referenced work describes the hierarchy of accounting characteristics, and it is displayed again on the following page as it relates to the mountain hiking experience. The next section offers a brief overview of accounting for inventory and is followed by two sections addressing the related conceptual connections and measurement issues. The final portion of this article presents newsworthy examples of inventory-related scandals as well as some good articles for further investigation.

ACCOUNTING FOR INVENTORY IN BRIEF

Most introductory texts cover thoroughly the four basic **historical cost**-based valuation choices (FIFO, LIFO, specific identification, and average cost) and the periodic and perpetual approaches, so we will not cover old territory here. In addition, the impact of the LIFO/FIFO choice on both the income statement and balance sheet during times of inflation receives much coverage. The "lower of cost or market" rule is often relegated to an appendix, and some inventory-related items pose special problems for accountants, so we will spend some time on these issues in the next two sections. For now, suffice it to say that, on the plains of everyday (transactions-based) accounting, accountants are assigned the task of recognizing purchases of merchandise when title to the goods is received and recognizing the departure of inventory when goods are sold (and title is passed to the buyer), while keeping track of such items as freight charges, discounts, and returns. Problematic items include goods on consignment, goods in transit, and goods stored in various remote locations. To the extent accountants lose track of such items (or make inappropriate journal entries), the journey to the peak (reflecting economic reality) is off to a bad start. The following section speaks to some of the conceptual connections to the asset inventory.

THE CONCEPTUAL FRAMEWORK AND INVENTORY

As the following illustration suggests, **decision usefulness** requires both **relevance** and **reliability**. Investors and creditors must find the reported inventory value influential to their assessment of past economic events or helpful in predicting **future cash flows**—that is, they deem the reported inventory value to be relevant information. The value must also be reliably reported. The following paragraphs will elaborate on both.



Though inventory is most likely two steps from cash (the firm must convince someone to buy the goods, usually on account, and then must collect from the customer), many times creditors look to current assets as one indication of a company's ability to repay short-term loans. The current ratio and inventory turnover ratio play a major role in these lending decisions. Merchandisers rely on a certain level of inventory to assure the continued sales that result in ultimate cash inflows to the firm, and judgments about a firm's profitability are based in part on management's ability to keep enough on hand to avoid stock-outs without investing too much in this non-interest-earning asset. Finally, if inventories build, this could signal a tapering off of demand and fewer **expected future cash flows**. These attributes make the asset inventory rank fairly high on relevance.

Accountants must adhere to the lower of cost or market rule, requiring a judgment about whether the utility of inventory (in essence, its resale value) has been impaired. This determination is relevant, because it influences the assessment of future expected cash flows. There is a trade-off, however, because the required judgment can hurt **reliability**, and on occasion, auditors have had to enforce this **conservatism**-related rule. If the year's profitability is coming up short of expectations, managers are reluctant to recognize a "Loss on Inventory" due to obsolescence or some other cause of impairment. **Comparability** might also be at issue if one firm acknowledges this asset reduction while another slips by its auditors.

Companies must **fully disclose** their inventory valuation approaches (FIFO, LIFO, etc.), and once a method is adopted, it must be used with **consistency** from year to year, though companies may be granted a change in method. Exactly what constitutes inventory often depends on **industry practice**, and industry analysts must keep abreast of special circumstances. Finally, the costs of maintaining a LIFO approach are somewhat higher than for FIFO, but in a **cost-benefit** sense, many companies deem the advantages to outweigh this cost consideration. The next section looks at some of the measurement issues related to inventory.

MEASUREMENT ISSUES AND THEIR CONCEPTUAL CONNECTIONS

Inventory valuation involves two major measurement issues:

- Is the reported value reflective of real economic transactions or events?
- Has the lower of cost or market (LCM) rule been applied appropriately?

The first relates to **expense recognition** (and the definition of an **asset** for the problematic items mentioned earlier) and the second to the **matching** concept. As companies determine whether or not goods have been purchased, they must ascertain whether title to the goods has actually passed to them. If so, both an asset (inventory) and a **liability** (accounts payable, unless the purchase was for cash) are recorded. As year-end closing and statement preparation approaches, temptations exist to record an asset but not the related liability or to recognize lower Cost of Goods Sold (an expense) by misstating inventory and/or purchases. Shipping terms, goods on consignment, and warehoused merchandise can all jeopardize the accountant's ability to accurately report ending inventory, and mistakes (and/or fraudulent reporting) can interfere with reporting economic reality on the published financial statements.

Similarly, accountants are charged with determining whether the value of goods in the ending inventory has fallen—due to obsolescence, wear and tear, or even theft. Accountants must report an amount for inventory that accurately reflects goods that can be sold. Since this relies on an estimate, some leeway exists (accountants are not expected to be perfectly accurate), but financial statement users should be able to rely on a good faith effort. That is, accountants should offer their best judgment based on available history and other facts (such as a widely recognized decline in market value for similar goods) and should not attempt to bias that estimate either upward or downward. This concept is referred to as “neutrality,” and it enhances the primary characteristic of **reliability**. Furthermore, recognition of a decline in value in the year in which it occurs represents an attempt to adhere to the **matching** principle so that the expense associated with the loss in value is recorded in the same accounting period, rather than waiting until the goods are sold (presumably at a lower price) in the future.

Certain **constraints** also relate to accounting for inventory. Because the LCM rule requires the extra effort of estimating inventory value and results in more complex accounting, the cost might be perceived as exceeding the benefit derived from the added accuracy. Thus the **cost-benefit** constraint plays a role, but auditors will insist on recognizing the loss in value if it is **material** in nature. Finally, when faced with a range of defensible (logical) values for assets such as inventory, the concept of **conservatism** encourages accountants to state the reported amount (historical cost or market) at the lower end of that acceptable range. For example, if an accountant believes an historical cost-based inventory of $100,000 is only worth a current replacement cost of $80,000 because market values (and sales values) have fallen, he or she should move towards the $80,000 end. Note that conservatism does NOT encourage an understatement of inventory. It simply suggests that, within an acceptable range, one should move to the lower end for assets. Once again, the goal is to reflect economic reality, not to mislead investors and creditors into believing the firm is worse off than it really is! Of course, too often the headlines suggest firms have actually tried just the opposite—overstating inventory—in an effort to buoy up the stock price, receive needed financing, or to meet certain ratio requirements. The following section notes a few of those instances.

INVENTORY IN THE NEWS AND LITERATURE

In a world of "just in time" inventory systems, you might think inventory is not very important, but recent discoveries have led accounting researchers to believe even the ancient Incas had systems to track inventory [Rosen, 2005], and most merchandising companies rely heavily on their "stock in trade." Most bankers and short-term creditors base their analysis of liquidity and the likelihood of repayment on the ratios involving inventory, and companies have been known to make the headlines when they were forced to revalue their inventories or simply misstated them. In this section, we will look at some news stories and some empirical studies that give evidence of the importance of inventory in judging a company's wellbeing.

One of the biggest headlines surrounding the valuation of inventory featured a drugstore chain named Phar-Mor. Phony inventory figures took an unprofitable, un-audited store to an eight-store chain within a year and built an empire of 300 stores before ultimate disaster struck. The ensuing cost was a financial fraud resulting in at least half a billion dollars of losses [See Wells, 2001 for the complete story.]. Another big story occurred at Cisco Systems, Inc. in 2001. Companies in the high-tech field, such as Cisco, are subject to extreme competition, rapid obsolescence, and aggressive price-cutting, and inventories often suffer declines in value in such an environment. This requires enforcement of the lower-of-cost-or-market rule whereby accountants must write down asset values should impairment occur. In 2001, the company recorded an inventory write-down in excess of $2 billion [Buffini, 2001; see also, Byrne, 2002.]. That same year, a number of companies (including Sycamore Networks, Lucent Technologies, and JDS Uniphase—as cited in Spiceland, 2007, p. 428) participated in what some refer to as "Big Bath" accounting. This is said to happen when earnings are falling short of expectations anyway, and companies use inappropriate write downs with the expectation of showing higher earnings in future periods (because assets are valued lower and sold at higher profits later). This mismatches revenues and expenses and represents an attempt to smooth income over time. Dynamic Data, Inc. fought a similar valuation battle with auditors and sought to buoy up their stock price by resisting such a write-down.[1]

Often the inventory choice itself (LIFO, for example) results in income manipulation as evidenced when General Tire and Rubber accelerated raw material purchases at the end of the year to minimize profits and taxes [as cited in Kieso, 2003, p. 366]. Here, the ending inventory value was manipulated (by accelerating low-cost purchases near year-end) to cause higher cost of goods sold and lower taxable income. Obviously, the goal of reporting economic reality is not always paramount. Several approachable articles look at how to catch those with fraudulent reporting in mind [Wells, 2001 and McKee, 2005], and others speculate on why companies often end up in scandalous situations (and in the headlines) [Young, 2005].

In addition to the newsworthy episodes, the literature offers many good empirical studies on inventory-related issues. Among the best "easy reads" in the area of financial analysis are Matsumoto et al. [1995], which investigates how security analysts view ratios such as inventory turnover and selling period and Lev and Thiagarajan [1993], which shows the inventory variable to be a significant indicator of stock returns. The LIFO versus FIFO choice also ranks high in the empirical literature (See especially Bar-Yosef, 1995 and Jennings et al., 1996.]. Finally, the role inventory can play in earnings management and manipulation provides much fodder for research [Rosner, 2003 and Marquardt and Wiedman, 2004]. Each of these studies looks at a number of measures for a large sample over several years to determine whether patterns can be ascertained and management choices better understood.

THIS SERIES CONTINUES

This article provided the third installment in a series of brief articles connecting the theoretical constructs of the conceptual framework to the various accounting elements. It offered some conceptual insights into the asset inventory, looked at some headline stories, and listed a few approachable articles addressing some issues related to inventory. The next installment in the series will look at the prime concerns accountants face as they measure and report long-lived assets such as property, plant, and equipment.

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[1] This case has been written up in excellent form in Cohen, Krishnamoorthy, and Wright, 2005.

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